

Application Serial No. 10/822,956
Art Unit: 2853

Please amend the present application as follows:

IN THE CLAIMS

The following is a marked-up version of the specification with the language that is underlined ("___") being added and the language that contains strikethrough ("—") being deleted:

1. – 9. (Canceled)

10. (Currently amended) A printhead, comprising:

a laser system operative to emit laser energy; and

a page-wide array comprising a plurality of areas, wherein each area includes

a heating layer including

an electric heating layer and

a photon absorbing layer,

each heating layer of a particular area overlaps the heating layer of an adjacent area and

~~a plurality of nozzle systems, the heating layer includes an electric heating layer and a photon absorbing layer, each heating component of a particular area overlaps the adjacent area, wherein~~ each nozzle system includes:

an orifice,

a fluid chamber including a fluid, and

~~the photon absorbing layer, the fluid chamber includes a fluid,~~

wherein a portion of the electric heating layer is adjacent the fluid chamber and is operative to heat the fluid in the fluid chamber to ~~the~~ a lower threshold temperature, and

~~the photon absorbing layer is adjacent the fluid chamber, the photon absorbing layer and~~ is operative to absorb laser energy emitted from the laser and heat the fluid in the fluid chamber from the lower threshold temperature to ~~the~~ an upper threshold temperature.

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11. (Original) The printhead of claim 10, wherein a fluid ejection system is operative to control the activation of the electric heating layers in a sequential manner from the first end of the page-wide array to the second end of the page-wide array, wherein the fluid ejection system is operative to control the scan rate of the laser system from the first end of the page-wide array to the second end of the page-wide array, wherein the page-wide array printing system synchronizes the activation of the electric heating layers and the scan rate of the laser system from the first end to the second end so that the fluid in the fluid chamber of a selected nozzle system is heated to the lower threshold temperature using the electric heating layer prior to the laser emitting laser energy directed to the photon absorbing layer of the selected nozzle systems.
12. (Original) The printhead of claim 10, wherein the page-wide array includes about 2000 to 8000 nozzle systems.
13. (Original) The printhead of claim 10, wherein the fluid includes black ink.
14. (Original) The printhead of claim 10, wherein the electric heating layer includes a resistive layer.
15. (Original) A printhead comprising:
 - a fluid chamber;
 - a nozzle in fluid communication with the fluid chamber to allow the fluid to be ejected from the fluid chamber;
 - means, responsive to an electric current, for heating the fluid in the fluid chamber to a first threshold; and
 - means, responsive to optical energy, for heating the fluid in the fluid chamber to a second threshold sufficient to eject ink from the fluid chamber.
16. (Original) The printhead of claim 15, comprising a plurality of fluid chambers and a plurality of nozzles associated with each fluid chamber, wherein the means responsive to the electric current heats the fluid in the plurality of fluid chambers and the means responsive to optical energy is operative to heat fluid at each nozzle.

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17. (Original) The printhead of claim 15, comprising means for synchronizing the heating of the fluid in the fluid chambers to the lower threshold with the heating of the fluid from the lower threshold to the upper threshold.
18. (Original) The printhead of claim 15, comprising means for synchronizing the heating of the fluid in each fluid chamber in a sequential manner using the means responsive to the electric current with the heating of the fluid in each nozzle using the means responsive to the optical energy.
19. (Original) A printhead comprising:
a plurality of fluid chambers;
a plurality of nozzles, each associated with at least one of the plurality of fluid chambers;
a plurality of resistors, each coupled to receive electric current and corresponding to one of the plurality of fluid chambers; and
a plurality photon absorbing layers that generate heat in response to optical energy, each photon absorbing layer being coupled to the fluid chambers to eject fluid from the fluid chambers.
20. (Original) The printhead of claim 19, wherein the photon absorbing layer includes a plurality of sections each associated with a single nozzle.
21. (Original) The printhead of claim 19, further comprising a laser system operative to direct laser energy at each of the plurality of photon absorbing layers.
22. (Original) The printhead of claim 19, further comprising a print control system operative to synchronize the activation of the electric heating layers and the scan rate of the laser system to eject fluid from the fluid chambers.
23. (Original) The printhead of claim 19, wherein the plurality of resistors and plurality photon absorbing layers are substantially coplanar with each other.

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24. (Original) The printhead of claim 19, wherein the plurality of resistors and plurality photon absorbing layers each form distinct layers.
25. (Original) The printhead of claim 24, wherein the plurality of resistors are each adjacent to one of the plurality of fluid chambers and wherein the plurality of photon absorbing layers are separated from the fluid ejection chambers by the plurality of resistors.